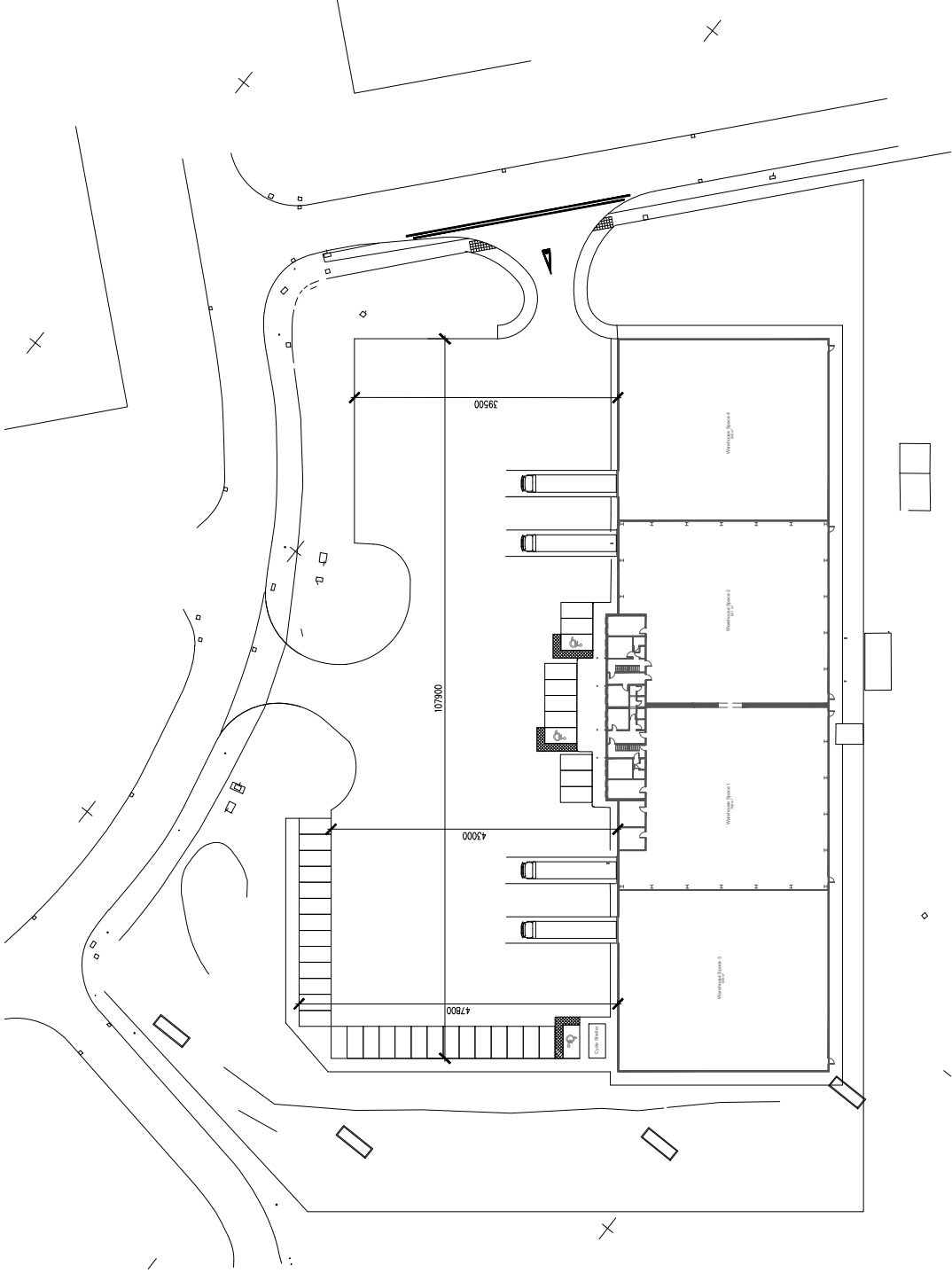


APPENDIX 3 – Proposed Site Layout

A	Initial issue	PJ	01.08.22
B	Updated to reflect tree constraints plan	PJ	09.08.22
C	HGV egress updated Cycle store added	PJ	18.08.22
D	Main access updated	PJ	24.08.22



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Client
F.I.Real Estate Management

Project
Dragon Packaging
Wrexham

Description
Proposed Site Plan

Status
Information

Scale	Drawn By	Date
1:500@A2	PJ	Jul22
Job Number	Drawing Number	Revision
1211	02-002	D

APPENDIX 4 – Greenfield Runoff Calculations



Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by: Jan Skibniewski

Site name: Dragon Packaging

Site location: LL13 9XN

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Runoff estimation approach: IH124

Site characteristics

Total site area (ha): 1.182

Methodology

Q_{BAR} estimation method: Calculate from SPR and SAAR

SPR estimation method: Calculate from SOIL type

Soil characteristics: Default Edited

SOIL type: 1 1

HOST class: N/A N/A

SPR/SPRHOST: 0.1 0.1

Hydrological characteristics: Default Edited

SAAR (mm): 692 692

Hydrological region: 9 9

Growth curve factor 1 year: 0.88 0.88

Growth curve factor 30 years: 1.78 1.78

Growth curve factor 100 years: 2.18 2.18

Growth curve factor 200 years: 2.46 2.46

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates: Default Edited

Q_{BAR} (l/s): 0.2 0.2

1 in 1 year (l/s): 0.17 0.17

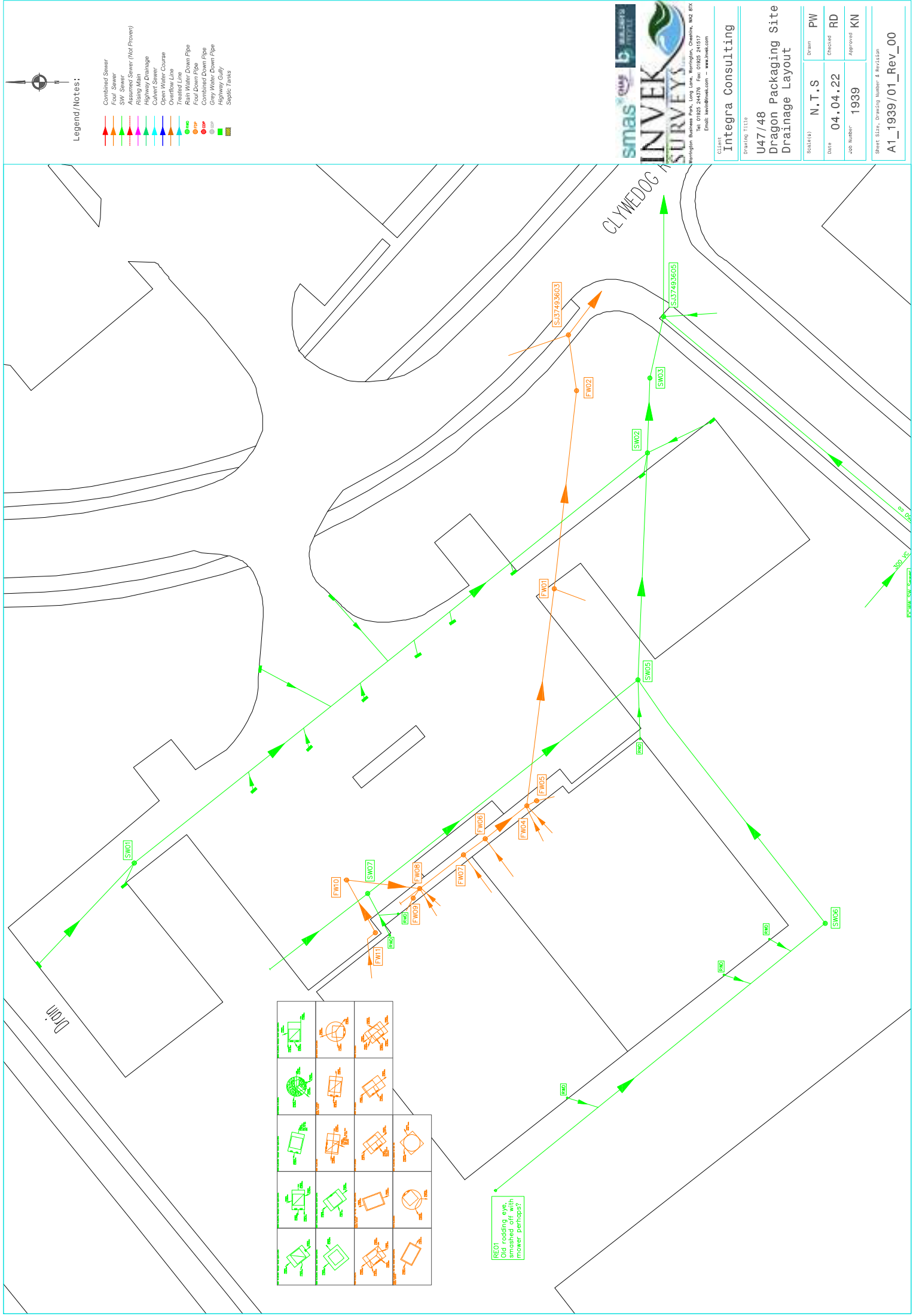
1 in 30 years (l/s): 0.35 0.35

1 in 100 year (l/s): 0.43 0.43

1 in 200 years (l/s): 0.48 0.48

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

APPENDIX 5 – Existing Drainage Survey



Legend/Notes:

- Combined Sewer
- Foul Sewer
- SW Sewer
- Assumed Sewer (Not Proven)
- Rising Main
- Highway Drainage
- Culvert Sewer
- Open Water Course
- Overhead Pipe
- Treated Line
- Rain Water Down Pipe
- Foul Water Down Pipe
- Combined Down Pipe
- Grey Water Down Pipe
- Highway Gully
- Sepic Tanks

smas **INVEK SURVEYS**

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Email: info@invek.com - www.invek.com

Client	Integra Consulting		
Drawing Title	U47/48 Dragon Packaging Site Drainage Layout		
Scale(s)	N.T.S	Drawn	PW
Date	04.04.22	Checked	RD
Job Number	1939	Approved	KN
Sheet Size, Drawing Number & Revision			
A1_1939/01_Rev_00			



LEGEND (representative of most common features)



Notes:

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that the material of some assets may not be correctly identified or Pitch Factor may be found to be asbestos cement (AC) or Pitch Factor (PF). It is therefore advisable that the possible presence of AC or PF is taken into account when considering any work on any risk assessment prior to excavation.

DCWW is not responsible for the accuracy of the data provided by third parties. DCWW is not responsible for the accuracy of the data provided by third parties. DCWW is not responsible for the accuracy of the data provided by third parties.

EXACT LOCATION OF ALL APPRISALS TO BE DETERMINED ON SITE



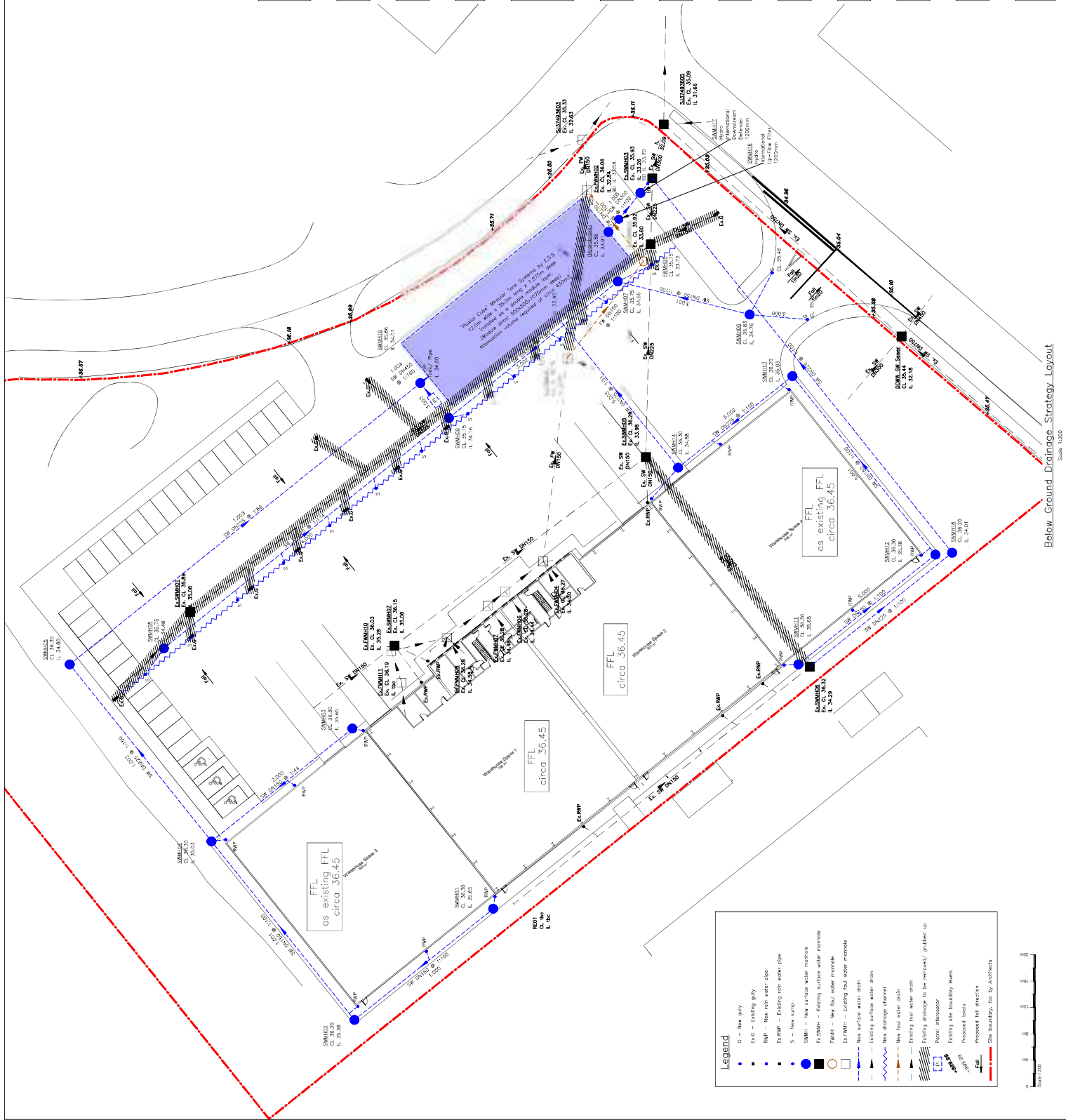
- Notes.**
- 1 All dimensions are in millimetres unless noted otherwise.
 - 2 All levels are in metres unless noted otherwise.
 - 3 All proposed drainage systems are subject to approval by the relevant authorities and service engineers.



- Attenuation design for 1 in 100 storm event plus 40% climate change allowance based on existing runoff with a minimum discharge of 5.0l/s.
- Existing FW connection into manhole Ex.FWMH02 to remain.
- Existing SW connection into manhole Ex.SWMH03 to remain.
- Existing catchments area— circa 5005m²
Proposed catchments area— circa 8816m²
- All new drainage pipes/ inspection chambers to be Polypropylene drainage system or similar approved up to 375mm dia. Bedding in accordance with the manufacturers details.
- Hydroprobe to limit the flow to 5.0l/s @ 1.2m head.
- Detail/ specification of petrol interceptor to be agreed with LLFA.
- Drawing is based existing site drainage survey drawing A1_1939/01_Rev_00.
- Drawing is based on Welsh Water map reference number 337494,349462.
- Drawing is based on topographical survey drawing S20615-2d1-Wrexham.
- Drawing is based on Architect's drawing 1211-02-002 Proposed Site plan.
- Location/ size etc. of RWP's, I.C's, pipes indicative only subject to detailed design.
- Attenuation crates to provide storage required for 1in100 plus 30% climate change allowance plus 10% urban creep.

Drawing indicative and for strategy purposes only. Final design/ details to be provided for construction.

INFORMATION	
Rev	Drawn/Date
P1	J2 09/22 Issued for Information
DRAGON PACKAGING LIMITED WREXHAM	
Drawing Title	
BELOW GROUND DRAINAGE STRATEGY LAYOUT (NO. TOPO)	
Drawing No	
33340	
Drawing No	
001	
Rev	
P1	



Notes.

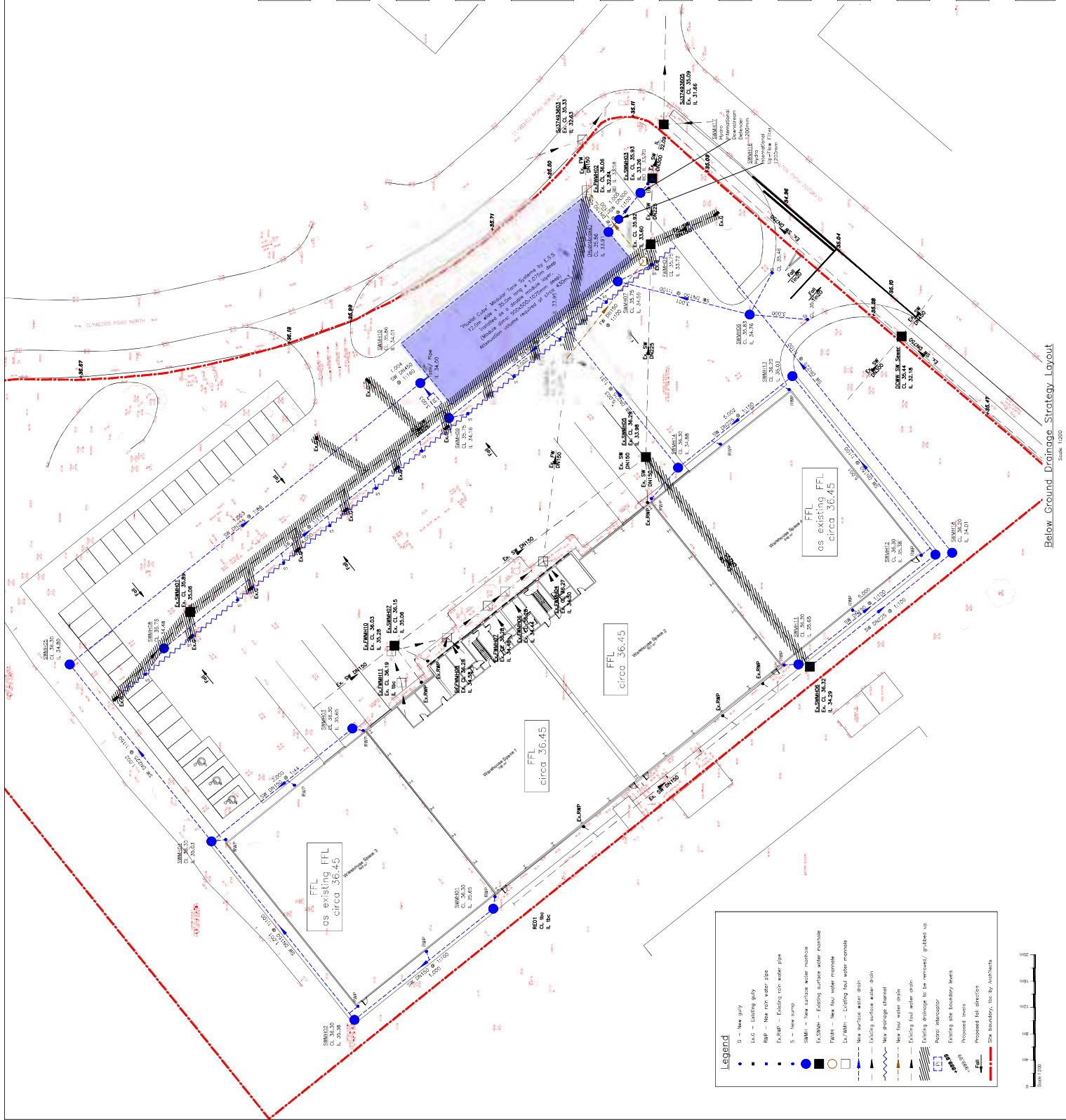
- 1 All dimensions are in millimetres unless noted otherwise.
- 2 All levels are in metres unless noted otherwise.
- 3 All levels are to Natural Ground unless noted otherwise.
- 4 All levels are to Finished Floor unless noted otherwise.



- Attenuation design for 1 in 100 storm event plus 40% climate change allowance based on existing runoff with a minimum discharge of 5.0l/s.
- Existing FW connection into manhole Ex.FWMH02 to remain.
- Existing SW connection into manhole Ex.SWMH03 to remain.
- Existing catchments area— circa 5005m²
Proposed catchments area— circa 8816m²
- All new drainage pipes/ inspection chambers to be Polypropylene drainage system or similar approved up to 375mm dia. Bedding in accordance with the manufacturers details.
- Hydrobrake to limit the flow to 5.0l/s @ 1.2m head.
- Detail/ specification of petrol interceptor to be agreed with LLFA.
- Drawing is based existing site drainage survey drawing A1_1939/01_Rev_00.
- Drawing is based on Welsh Water map reference number 337494,349462.
- Drawing is based on topographical survey drawing S20615-2d1-Wrexham.
- Drawing is based on Architect's drawing 1211-02-002 Proposed Site plan.
- Location/ size etc. of RWP's, I.C's, pipes indicative only subject to detailed design.
- Attenuation crates to provide storage required for 1in100 plus 30% climate change allowance plus 10% urban creep.

Drawing indicative and for strategy purposes only. Final design/ details to be provided for construction.

Rev	Drawn	Date	Description
P1	J2	08/22	Issued for Information
INFORMATION			
DRAGON PACKAGING LIMITED WREXHAM			
Drawing Title			
BELOW GROUND DRAINAGE STRATEGY LAYOUT (WITH TOPO)			
Drawing No			
3340			
Project No			
002			
Client			
P1			



Legend

—	G - New gully
—	LxG - Existing gully
—	RWP - New rain water pipe
—	Ex.RWP - Existing rain water pipe
—	S - New sump
—	SAMI - New surface water manhole
—	Ex.SAMI - Existing surface water manhole
—	FIMH - New foul water manhole
—	Ex.FIMH - Existing foul water manhole
—	New surface water drain
—	Existing surface water drain
—	New foul water drain
—	Existing foul water drain
—	Existing drainage to be removed/ grubbed up
—	Petrol interceptor
—	Proposed lines
—	Existing site boundary lines
—	Proposed lot direction
—	Site boundary, loc by Architects

Below Ground Drainage Strategy Layout
Scale 1:500